

Smart
TM

2 AMP/1AMP BATTERY CHARGER

IF YOU SHOULD EXPERIENCE A PROBLEM WITH YOUR VECTOR PURCHASE CALL TOLL FREE (866) 584-5504. IN MOST CASES A VECTOR SERVICE REPRESENTATIVE CAN RESOLVE YOUR PROBLEM OVER THE PHONE.

KEY INFORMATION YOU SHOULD KNOW:

- Quick Disconnect Harness
- Two-Stage Charging
- DC Accessory Plug
- Battery Terminal Rings
- Battery Clips



**BEFORE RETURNING THIS PRODUCT FOR ANY
REASON, PLEASE CALL TOLL FREE (866) 584-5504**

OWNER'S MANUAL AND WARRANTY INFORMATION

THIS MANUAL CONTAINS IMPORTANT INFORMATION REGARDING SAFETY, OPERATION, MAINTENANCE AND STORAGE OF THIS PRODUCT. READ CAREFULLY BEFORE USE, AND RETAIN FOR FUTURE REFERENCE.

4140 S.W. 28th Way, Ft. Lauderdale, FL 33312
Toll Free: (866) 584-5504

IMPORTANT SAFETY INSTRUCTIONS

WARNING - RISK OF EXPLOSIVE GASES

1. WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT EACH TIME BEFORE USING YOUR CHARGER, YOU READ THIS MANUAL AND FOLLOW THE INSTRUCTIONS EXACTLY.
2. To reduce risk of battery explosion, follow these instructions and those published by the battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery. Review cautionary markings on these products and on engine.

GENERAL BATTERY SAFETY

1. Use this charger for charging a 12 V LEAD-ACID battery only. It is not intended to supply power to a low voltage electrical system other than in automotive applications. Do not use this battery charger for other types of batteries, these may burst and cause injury to persons and damage to property.
2. Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.
3. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
4. An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in a risk of fire and electric shock, and will void warranty.

If extension cord must be used, make sure:

- a. That pins on plug of extension cord are the same number, size, and shape as those of plug on charger.
- b. That extension cord is properly wired and in good electrical condition; and
- c. That wire size is AWG #18 (18 gauge) to 100 feet and AWG #16 for distances over 100 feet.
5. Do not operate charger with damaged cord or plug - replace immediately.
6. Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified service technician.
7. Do not disassemble charger; take it to a qualified service technician when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire, and will void warranty.
8. To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
9. Do not expose charger to rain, snow or use when wet.
10. Never charge a frozen battery.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

SAVE THESE INSTRUCTIONS

PERSONAL PRECAUTIONS SAFETY

1. Another person should be within range of your voice or close enough to come to your aid when you work near a lead-acid battery.
2. Fresh water and soap should be nearby in case battery acid contacts skin, clothing, or eyes.
3. Wear complete eye protection and clothing protection. Avoid touching eyes while working with a battery. Acid, acid particles or corrosion may get into eyes. Immediately flood eye with cold water (Eye Wash Station) for at least 10 minutes and seek medical attention immediately.
4. If battery acid contacts skin or clothing, wash immediately with soap and water.
5. NEVER smoke or allow a spark or flame in vicinity of battery or engine.

CAUTION: Dropping a metal tool onto battery might spark or short-circuit battery or other electrical part *that may cause explosion.*

6. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead acid battery. A lead-acid battery can produce a short-circuit current high enough to cause a severe burn.

AC POWER CORD CONNECTION

Charger is equipped with an AC cord with a "polarized" plug. The plug must be plugged into a properly installed 110/120VAC polarized outlet in accordance with all local codes and ordinances. This battery charger is for use with a 110/120VAC polarized plug ONLY.

DANGER: NEVER alter AC cord or plug – if it will not fit outlet, have proper outlet installed by a qualified electrician. Improper connection may result in an electric shock, and will void warranty.

PREPARING TO CHARGE

1. Determine voltage of battery by referring to car owner's manual.
2. If it is necessary to remove battery from vehicle to charge, or to clean terminals, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.
3. Clean battery terminals. Do not allow corrosion to come in contact with eyes.
4. Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps (maintenance free), carefully follow manufacturer's charging instructions.
5. Study all battery manufacturers' specific precautions, such as removing or not removing cell caps, while charging and recommended rates of charge.
6. Area around battery should be well ventilated while battery is being charged.
7. Make sure the initial charging rate does not exceed battery manufacturers' requirement.

CHARGER LOCATION

1. Locate charger as far away from battery as cables permit.
2. **NEVER** place charger directly above battery being charged; gases from battery will corrode and damage charger.
3. **NEVER** allow battery acid to drip on charger when reading specific gravity or filling battery.
4. **NEVER** operate charger in a closed-in area or restrict ventilation in any way.
5. Marine batteries must be removed and charged on shore.
6. Do not set a battery on top of charger.

DC CONNECTION PRECAUTIONS

1. Connect and disconnect DC output clamps only after removing AC cord from electric outlet.
2. Never allow clamps to touch each other.
3. Attach clamps to battery posts and check for secure connection. This will hold clamps securely on terminals and helps to reduce risk of sparking.

FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE. A SPARK NEAR BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF A SPARK NEAR BATTERY:

1. Position AC and DC cords to reduce risk of damage by hood, door, or moving engine part.
2. Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.
3. Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has larger diameter than NEGATIVE (NEG, N, -) post.
4. For negative-grounded vehicle, connect POSITIVE (RED) clamp from battery charger to POSITIVE (POS, P, +) post of battery. Connect NEGATIVE (BLACK) clamp to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to heavy gauge metal part of the frame or engine block.
5. For positive-grounded vehicle, connect NEGATIVE (BLACK) clamp from battery charger to NEGATIVE (NEG, N, -) ungrounded post of battery. Connect POSITIVE (RED) clamp to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
6. When disconnecting charger, turn switches to off, disconnect AC cord, remove clamp from vehicle chassis, and then remove clamp from battery terminal.
7. See operating instructions for length of charge information.
8. Do not charge the battery while the engine is operating.

INTRODUCTION

Thank you for selecting the Vector Battery Charger (VEC080). With proper care and use, it will give you years of dependable service. Please read and observe all safety warnings and cautions and this entire user's manual, before installing or using this device. The manual should then be retained for quick reference whenever the unit is used. Figure 1 shows the battery charger and its components.

FEATURES

- The unit has two Charge Rate settings, controlled by one switch:
 - a) 2 amp: for recharging motorcycles, lawn mowers, tractors, ATVs, snowmobiles and personal watercraft.
 - b) 1 amp: for maintenance charging RVs, speciality vehicles, antique and classic cars, marine deep cycle batteries and more.
- Maintains battery charge in stored vehicles
- Excellent for winter pre-start battery warm-up.
- Includes three connector sets:
 - a) DC accessory plug.
 - b) Battery harness clips.
 - c) Battery ring terminal harness.
- Charging indicators:
 - a) Red - bad connection, battery not able to accept charge, reverse polarity hook-up.
 - b) Yellow - connection correct and charging.
 - c) Green - fully charged.
- UL-Listed for safety
- Fully automatic; powers on when needed, powers off when battery is fully-charged or topped-off
- Built-in circuit protection guards against overcharging or short circuit
- Automatically checks for correct polarity (requires a minimum of 4.0 volts battery voltage)
- Convenient, color-coded ring terminals/clamps for easy, correct installation.
- Charges with high frequency, pure, DC current.

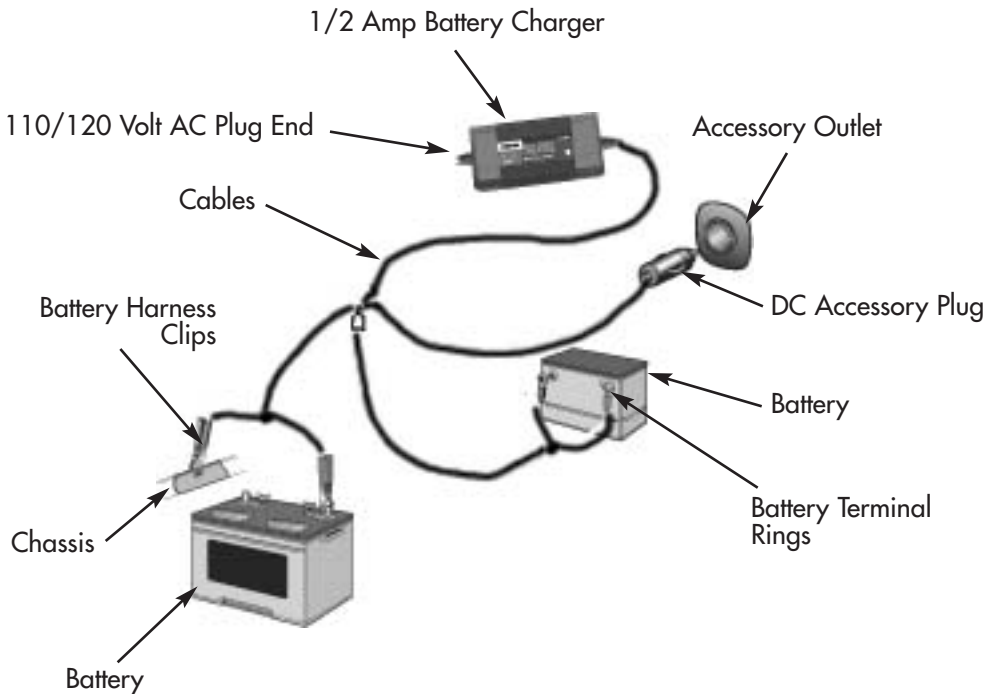


FIGURE 1. 2 Amp Battery Charger Connection Diagram

CONNECTING THE CHARGER WITH THE TERMINAL CLIPS

The charger's output leads have color-coded battery clips (Figure 2) (RED-POSITIVE and BLACK-NEGATIVE). These connect directly to the corresponding connectors on the battery posts.

1. Position the RED clip on the terminal of the POSITIVE battery post connector.
2. Position the BLACK clip on the NEGATIVE post connector.
3. Simply plug the AC plug of the AC/DC adapter/charger into any standard 110/120 volt AC wall outlet to begin charging.
4. When charging is complete and the FULL light is on, remove the charger and store in a safe place.

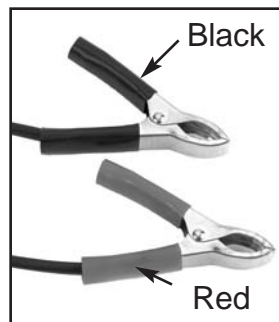


FIGURE 2. Battery Clips

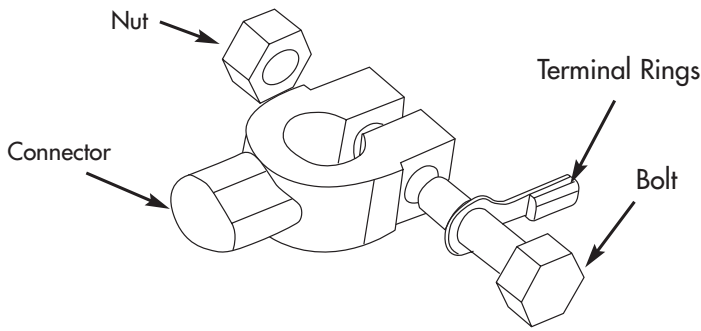


FIGURE 3. - Ring Terminal Connection Diagram

NOTE: ALWAYS disconnect the AC power cord from the AC power outlet before connecting (or disconnecting) the charger to (or from) the battery.

CONNECTING THE CHARGER WITH TERMINAL RINGS

The charger's output leads have crimped, color-coded ring terminals (Figure 4) (RED-POSITIVE and BLACK-NEGATIVE). These rings connect directly to the corresponding connectors on the battery posts.

1. Remove the nuts from the bolts of the battery post's connectors.
2. Position the RED terminal on the bolt of the POSITIVE battery post connector.
3. Position the BLACK terminal on the NEGATIVE post connector; then replace the nuts. (Figure 3)
4. If there is any problem connecting the output leads, check with a reputable auto supply store or contact the Customer Service Department toll free (866) 584-5504 for assistance in finding an appropriate connection device for your particular application.

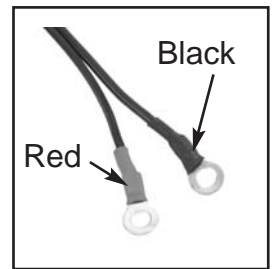


FIGURE 4. Terminal Rings

CONNECTING THE CHARGER WITH THE DC ACCESSORY PLUG

The charger's output leads also contain a DC accessory plug (Figure 5).

1. Plug DC plug into vehicle's DC accessory outlet.
2. Plug the AC plug of the charger into any standard 110/120 volt AC wall outlet.

NOTE: The 12 volt DC recharging procedure is recommended only when it is necessary, as continued use of the 12 volt DC recharging procedure may shorten the battery system's life .



FIGURE 5. DC Accessory Plug

If unit is fully discharged, it is recommended that the vehicle being used for recharging be left running while the unit is being charged via the 12 volt DC method.

MAINTENANCE

With proper care and minimal maintenance, the Vector® Battery Charger will provide years of dependable service. For maximum performance, Vector® recommends:

1. Storing the unit in a clean, dry, cool place when not in use.
2. Cleaning the unit casing and cords (as necessary) with a dry (or slightly damp) cloth. Ensure that unit is completely disconnected from battery and power source, before cleaning.
3. To maintain the operating condition and maximize the life of the charger cords, always coil them loosely for storage. Do not wrap them around the unit or crimp them with a tight band.

SPECIFICATIONS

Input:.....	120V AC 0.5 amps
Output:.....	Nominal 12 volt DC at up to 2 amperes
Reverse Polarity Protection	Output battery clips short circuit protection
Bulk Charge.....	2 amps constant current raises battery voltage until it reaches 14.4V +/- 0.2V
Absorption.....	Constant- holds voltage 14.4V +/- 0.2V and forces the current to fully charge the battery
Float.....	When battery falls below 12.8V +/- 0.2V the charger will start charging from Bulk Charge stage again.

TROUBLESHOOTING

NOTE: Ensure that all installation and operating instructions and safety precautions are understood and carefully followed by anyone installing or using the charger. Refer to the following chart for some typical operating problems and recommended actions:

Charging Indicators

Red LED	Bad connection, battery not able to accept charge, reverse polarity connection
Yellow LED	Connection correct and charging.
Green LED	Battery fully charged.

NOTE: When the charger is properly connected, the green LED will illuminate, indicating the inside smart circuit is functioning to judge the battery status. This procedure may take up to 2 minutes if the battery is lower than 12.8 volts.

- Check that the correct charge rate has been selected for the battery being charged.
- If the battery to be charged has fallen below 4 volts, the battery cannot be re-charged with this unit.

VERY COLD BATTERY

If the battery to be charged is extremely cold (in temperatures less than freezing, - 0° C/32° F) it cannot accept a high rate of charge, so the initial charge rate will be slow. The rate of charge will increase as the battery warms.

CAUTION: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. This limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

2 YEAR LIMITED WARRANTY PROGRAM

This limited warranty program is the only one that applies to this product, and it sets forth all the responsibilities of Vector Manufacturing, Ltd., regarding this product. There is no other warranty, other than those described herein.

This Vector Manufacturing, Ltd. product is warranted, to the original purchaser only, to be free of defects in materials and workmanship for two years from the date of purchase without additional charge. The warranty does not extend to subsequent purchasers or users. Vector Manufacturing, Ltd. will not be responsible for any amount of damage in excess of the retail purchase price of the product under any circumstances. Incidental and consequential damages are specifically excluded from coverage under this warranty.

This product is not intended for commercial use. This warranty does not apply to accessories or damage to units from misuse or incorrect installation. Misuse includes wiring or connecting to improper polarity power sources.

RETURN/REPAIR POLICY: Defective products, other than accessories, may be returned postage prepaid to Vector Manufacturing. Any defective product, other than accessories, that is returned to Vector Manufacturing within 30 days of the date of purchase will be replaced free of charge. If such a product is returned more than 30 days but less than two years from the purchase date, Vector Manufacturing will repair the unit or, at its option, replace it free of charge.

If the unit is repaired, new or reconditioned replacement parts may be used, at Vector Manufacturing's option. A unit may be replaced with a new or reconditioned unit of the same or comparable design. The repaired or replaced unit will then be warranted under the terms of the remainder of the warranty period. The customer is responsible for the shipping charges on all returned items after 30 days. During the warranty period, Vector Manufacturing, Ltd. will be responsible for the return shipping charges.

LIMITATIONS: This warranty does not cover accessories, bulbs, fuses and batteries, defects resulting from normal wear and tear (including chips, scratches, abrasions, discoloration or fading due to usage or exposure to sunlight), accidents, damage during shipping to our service facility, alterations, unauthorized use or repair, neglect, misuse, abuse, failure to follow instructions for care and maintenance, fire, flood and Acts of God.

If your problem is not covered by this warranty, call our Technical Support Department at (954) 584-4446 or Toll Free at (866) 584-5504 for general repair information and charges if applicable. You may also contact us through our website at www.vectormfg.com.

STATE LAW RIGHTS: This warranty gives you specific legal rights. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the exclusions or limitations stated herein may not apply. This warranty gives the purchaser specific legal rights; other rights, which vary from state to state, may apply.

TO REQUEST WARRANTY SERVICE FOR THIS PRODUCT: Contact Vector Manufacturing Technical Support by telephone, fax or mail. We suggest that you keep the original packaging in case you need to ship the unit. When returning a product, include your name, address, phone number, dated sales receipt (or copy) and a description of the reason for return and product serial number. After repairing or replacing the unit, we will make every effort to return it to you within four weeks.

WARRANTY ACTIVATION: Please complete Warranty Activation Card and mail to Vector Manufacturing. Enter "VEC080" as Model and "2 Amp Battery Charger" as Product Type. All Vector Manufacturing, Ltd. products must be registered within 10 days of purchase to activate this warranty. Mail the completed registration form, along with a copy of the original sales receipt to:

ATTN.: CUSTOMER SERVICE / VECTOR MANUFACTURING, Ltd.

4140 SW 28th Way, Ft. Lauderdale, FL 33312

PH: 954-584-4446 • TOLL FREE: 866-584-5504 • Fax: 954-584-5556.

You may also contact us at our web site www.vectormfg.com.

WARRANTY IS NON-TRANSFERABLE AND NON-REFUNDABLE.

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